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COLLEGE PARK, MARYLAND

ISSUED QUARTERLY

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INTRODUCTION

When President Roosevelt's Commission on Country Life met and discussed with representative men from all parts of Maryland the conditions of farm life in this State, the consensus of opinion was that the greatest need is more education. With that thought in mind this bulletin is put forth to direct attention to some of the educational factors in the State and more especially the ten weeks' course in Agriculture and Horticulture offered by the Maryland Agricultural College.

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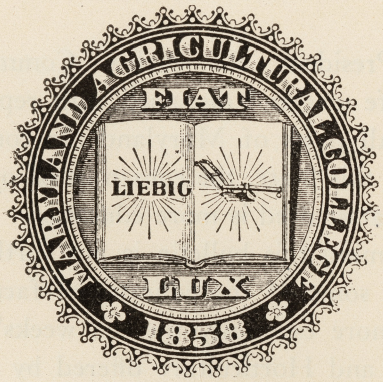

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PRESS OF HARRY W. WILLSON, BALTIMORE, MD.

Ten-Weeks' Special Course in Agriculture

BEGINNING WEDNESDAY, JANUARY 6, 1909.

SYNOPSIS OF COURSE

I. SOILS—TWENTY-TWO HOURS

PROF. W. T. L. TALIAFERRO

The examination and classification of soils; the relation of soils to water, air, heat; adaptation of soils to crops; improvement of physical condition of soils; drainage, ventilation, cultivation, green manures, cover crops, rotation of crops.

II. PLANT PRODUCTION — THIRTY HOURS

This course embraces the growing of farm crops, including the selection of seed, preparation of the soil, fertilizing, cultivation and harvesting. Particular attention is given to the growing of alfalfa, cow-

peas, clover and other legumes for stock feeding and soil improvement.

Maryland is a "Corn State." The corn crop occupies a greater acreage and is worth more to the farmers of the State than any other crop. Its average yield per acre is already greater than in some of the "Corn States" of the West, and is on the increase. Ten bushels per acre could easily be added to it by a more judicious system of seed selection than at present prevails. That would mean at ordinary prices an increase in the income of the corn growers of Maryland of more than three millions of dollars, a very substantial increase and well worth trying for. In this course great attention is paid to this important subject, and students are made thoroughly familiar by actual practice with the most improved methods of selecting and testing seed corn. They will also be given practical instruction in the principles of breeding corn for improvement in yield and feeding value, and in the most approved methods of cultivating and fertilizing this important crop.

III. AGRICULTURAL CHEMISTRY—TWENTY HOURS

DR. H. B. McDONNELL

Soils; their formation, classification and properties. The mineral constituents of soils and their bearing on plant growth. The best means of supplementing them when needed for plant growth.

IV. MANURES—TWENTY HOURS

DR. H. B. McDONNELL

The best methods of preserving and applying farm manure. The relative value of the different manures and fertilizers. The maintenance of soil fertility. The place of lime in the farm economy.

V. STOCK FEEDING—TWENTY HOURS

MR. GRANVILLE HIBBERD

The work in Stock Feeding will cover the principles of animal nutrition, the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. The subject will be considered under the following heads:

1. The chemical elements and compounds in feeds.
2. Function of the nutrients.
3. Digestion of food.
4. Cattle foods. Commercial feeding stuffs.
5. The selection and compounding of rations.
6. Feeding growing animals.
7. Feeding for the production of milk, meat, wool, eggs and energy, or work.

VI. FARM LIVE STOCK — TWENTY-EIGHT HOURS

MR. GRANVILLE HIBBERD

Principal breeds of horses, cattle, sheep and hogs; their uses and adaptation; principles and practice of stock breeding; stock judging.

This section includes a thorough course in judging farm live stock, especially dairy and beef cattle. The student is taught by actual handling of the stock and the use of the score card to correctly select animals for different purposes and to accurately gauge their value for their special purpose.

VII. DAIRYING — TWENTY HOURS

MR. GRANVILLE HIBBERD

The dairy instruction will consist of lectures on bacteriology and the necessary precautions to insure a good product; lectures on the obtaining of cream from the milk, comparing the old gravity process and the use of separators; on milk testing with the Babcock test, and the place of the test in modern dairying and on butter making, with the use of the acid test, which practically insures the making of good butter. The lectures on milk testing and butter making will be supplemented by practical instruction, and each student will be required to handle the Babcock test, as well as the separator and the churn.

VIII. FRUIT-GROWING—THIRTY HOURS

PROF. C. P. CLOSE, ASSOCIATE PROF. P. M. NOVIK, MR. W. R. BALLARD

This will consist of lectures upon the selection of land for different kinds of orcharding and small-fruit growing; the propagation, the laying out, cultivation, fertilization, and pruning of small trees, grape vines and small fruits. Practical instruction will be given in seedage, cuttage, layerage, graftage and pruning of all kinds of fruit trees and vines.

IX. TRUCK-GROWING—TEN HOURS

ASSOCIATE PROF. P. M. NOVIK

This is a discussion of our most important truck crops from a commercial point of view. It includes the selection of land, the construction of cold frames, hot-beds and modern green-houses for growing vegetables; the propagation of plants, fertilization and cultivation of truck crops and marketing.

X. VETERINARY SCIENCE — FORTY HOURS

DR. S. S. BUCKLEY

An elementary study of the diseases of live stock should be made by everyone having charge of domesticated animals. Frequently farm animals become a source of considerable loss through neglect

or unintelligent management when out of condition.

While the treatment of sick animals should rest with veterinarians trained in such work, yet the owner or manager must know when such services are needed and how to carry on such treatment intelligently when directed by the veterinarian. The effort is made in the following course of lectures to prepare the student with such knowledge and to enable him the better to understand the bulletins, reports and treatises upon veterinary subjects which he may possess:

1. Nutrition.
2. Diseases due to mistakes in feeding.
3. Infectious diseases.
4. Cattle and their common diseases.
5. The examination of a horse for soundness.
6. Lameness.
7. The foot — its care and shoeing.
8. The use of medicines, and minor operations.
9. Stable sanitation and the prevention of tuberculosis.

XI. TOBACCO — FIVE HOURS

PROF. H. J. PATTERSON

The plant bed, culture, harvesting, curing, marketing and effects of fertilizing elements upon the quality.

XII. PLANT PHYSIOLOGY AND PATHOLOGY FIFTEEN HOURS

PROF. J. B. S. NORTON

Five lectures on the general principles of plant life and structure; how plants live, grow and reproduce, and how they are influenced by different conditions of light, temperature, moisture and other factors in their surroundings, considered with special reference to agricultural problems. Five lectures on the causes, symptoms and treatment of plant diseases, with practice work in examination and study of diseased plants and the preparation and use of remedies and preventatives.

This course will include the discussion of the laws of plant life, the uses and structure of plant parts, nutrition, growth, formation of products by the plant, reproduction by seeds and otherwise, seed testing, useful plants, weeds, poisonous plants, causes of disease, parasitic fungi, preparation of fungicides, and spraying.

XIII. ECONOMIC ENTOMOLOGY — TWENTY HOURS

PROF. T. B. SYMONS

It has recently been estimated that insect injury to agricultural products amounts to over seven hundred millions of dollars each year. It is not only the actual destruction of the crops that causes loss, the effect upon the products may be to reduce the

grade and make them more or less unsalable and unprofitable. These lectures are designed to treat of some of the more common pests that are responsible for this loss, with concise considerations of their life histories and habits and to discuss fully the means for control at our command.

Attention will also be given to the making and applying of insecticides.

XIV. CARPENTRY AND BLACKSMITHING—FIFTY-FIVE HOURS

PROF. HARRY GWINNER

ASSISTANTS, MR. MASON AND MR. CRISP

A knowledge of this is very important to the agriculturist of this day. The equipment for this instruction is complete. The industrious, eager seeker after knowledge will accomplish much in the line of this work in the time allotted.

1. Sharpening of tools.
2. Adjustment of tools.
3. Sawing, planing, chiseling and boring.

Practical lessons in blacksmithing, mechanism and care of forge shop and smith's tools. Preparation of forge for fire. Building and managing the fires and fluxes. Forging, bonding, welding.

XV. FARM ACCOUNTS — TWELVE HOURS

PROF. H. T. HARRISON

A simple, concise and accurate method of keeping farm accounts. Business methods are as necessary

to the successful farmer as to the merchant. Neither can do without a practical knowledge of bookkeeping.

XVI. ROAD CONSTRUCTION AND LEVELING FIVE HOURS

PROF. THOMAS H. TALIAFERRO, C. E., PH.D.

A brief treatment of the principles involved and the methods used in the location, construction and maintenance of country roads.

An opportunity will be given those desiring it to learn the use of the level in laying out drains, etc. Students wishing to take the work in leveling must report to the instructor in charge within two weeks after the opening of the term.

XVII. CIVIL GOVERNMENT — TEN HOURS

PROF. F. B. BOMBERGER

The general principles of government; the rights and duties of citizens and an inquiry into the political institutions of Maryland.

REQUIRED AND ELECTIVE WORK

Each student will be required to take not less than two hundred and fifty hours of work. Two hundred of these must be devoted to the following specified studies:

Soils, 22 hours.
Farm Dairying, 20 hours.
Manures, 20 hours.
Plant Production, 30 hours.
Agricultural Chemistry, 20 hours.
Farm Live Stock, 28 hours.
Stock Feeding, 20 hours.
Horticulture, 40 hours.

The other fifty hours will be devoted to such topics as the student may elect.

Terms: Tuition and room free. No expense for use of laboratories or supplies. Good board at moderate rates can be secured in the neighboring villages of Berwyn, Lakeland, Riverdale and Hyattsville—all within a short distance of the College and Experiment Station. Electric cars make frequent connections. A limited number can be accommodated at the College at $40.00 for the course. Students will be expected to furnish their own bedclothes, pillows, towels, napkins, and overalls for dairy work. *Short course students are not required to drill or wear uniforms.*

The 1908 Horticultural Exhibition

BY

THOMAS B. SYMONS

The horticultural exhibition held in Baltimore, December 1st and 2nd, in connection with the eleventh annual meeting of the Maryland State Horticultural Society may well be considered a horticultural triumph for this State. Indeed, there is no doubt that by this exhibition Maryland has set a standard for horticultural shows that her sister States may proudly imitate. The exhibition was held in the Fifth Regiment Armory, a building containing an open floor space of 60,000 square feet, and said to be the largest of its kind in the country. The

interior decorations of the Armory were simple, but attractive. State and national flags interwoven with smilax and evergreens constituted the decorations of galleries and walls, while masses of evergreens and attractive trade exhibitions tastefully arranged obscured alcoves, supports, etc., around the first floor.

The immense floor space, with the exception of that occupied by the corn-breeders' exhibit, was covered by a general exhibition of fruits, flowers, foliage plants and vegetables arranged in an artistic manner that gave a splendid effect to the whole.

In the centre of the hall stood a large column about fifteen feet high, which was covered by nuts of every kind, many of which are grown in the State, while an appropriate base was filled with fruits of every description, tastefully arranged on its sides. The column supported a large golden eagle, which together served as an excellent centre attraction. Thus the general effect of the show was excellent and the visitor who closely examined the special exhibits was further impressed by their quality.

The fact that this show was accomplished by only one hundred and eighty-eight exhibitors indicates the sincere interest of these horticulturists in the promotion of this industry in the State and the possibilities of such exhibitions in the future. For there has been a steady growth during the past few years in the quality and quantity of exhibits at the show held in connection with the annual meeting of the Society.

FRUITS

The exhibit of fruits, especially apples and pears, was exceptionally good, there being one hundred and nineteen varieties of apples and twenty-six varieties of pears, with a general display of over fifteen hundred plates and twenty barrels and boxes of apples made by one hundred and thirty-one exhibitors. Two exhibits of peaches were unique for this season of the year.

In no department has the educational feature of these annual shows impressed the growers more forcibly than in culture treatment and selection of fruit for exhibition purposes. The majority of the fruit was of exceptional quality, being free from blemishes and scars and of uniform size and color. In fact, it was quite difficult for the judges, who were experienced men, to make the awards in some of the varieties of apples. In addition, this splendid exhibit of apples demonstrated the great possibilities for the growing of this, the "King" of fruits, in all parts of the State. Excellent specimens of the same varieties were shown from the eastern, western and central parts of the State. This display was all the more surprising when it is considered that there was only about twenty percent of an apple crop in Maryland this year, and the season was exceptionally dry.

The exhibit of pears, including twenty-six varieties, eclipsed any previous exhibit of this fruit in the State. The fruit was firm, of good color, and free from blemishes.

The nut exhibit, comprising over twenty-five varieties, attracted much attention, inasmuch as it is not generally known that so many of the best varieties of nuts can be raised in Maryland. The walnuts, pecans,, filberts and chestnuts were of good size and quality.

The exhibit of canned fruits, jellies, preserves, etc., showed the superior handiwork of the feminine sex of Maryland. This, then, is a brief description of the fruit exhibit in the general show.

FLORAL DISPLAY

The display of cut flowers, ornamental foliage plants and hardy evergreens can be considered the best ever made by the florists of the State. The fourteen exhibitors showed a large number of different varieties of cut flowers and foliage plants, including sixteen varieties of roses, eleven varieties of carnations, and eighteen varieties of chrysanthemums and many different flowering foliage plants. These exhibits were tastefully arranged in the centre of the hall, adding much to the attractiveness and beauty of the exhibit. Too much cannot be said of the great ability of many of our Maryland florists to produce new creations in flowers. No State in the Union can boast of more elegant roses than John Cook has given to the trade. His latest introduction, "My Maryland," bids fair to rival any rose of the country in its class. Indeed, a summary of the work of Maryland florists would be a monument to the State.

The general exhibit of flowers and plants was highly commendable, and the keen interest displayed by the florists in the decision of the judges illustrates the very marked attention that these growers give to the production of our finest flowers.

The large groups of ornamentals displayed not only artistic arrangement, but served as excellent backgrounds for the floral and fruit exhibits, which added much to the effect of the show.

VEGETABLES

While the vegetable display was very creditable and one of the largest ever made in connection with the meeting, there being thirty-seven exhibitors and over one hundred and fifteen different varieties of truck crops, yet it may be said that this phase of the Horticultural Exhibit has not assumed the proportions that are due the importance of this industry in the State. The quality of the vegetables surpassed similar exhibits, showing the adaptability of Maryland soils to produce the best of many kinds of vegetables. The fine cauliflower exhibit, which was grown in Garrett County, and the splendid exhibit of sweet potatoes from Queen Anne's County served as surprises to many visitors.

MISCELLANEOUS EXHIBITS

There were a number of miscellaneous exhibits of more or less educational value, viz., the honey and live bee exhibit, the exhibit of the Departments of Entomology and Pathology of the Maryland

Agricultural College, the various nursery exhibits, etc., etc.

The honey exhibit comprised a large quantity of comb and extracted honey, shown advantageously; also samples of wax made in different forms. The live bees shown in special exhibition hives attracted much attention. While creditable for the first attempt at an exhibit of this character at the horticultural meeting, this industry of the State is capable of much greater display, for the State as a whole is especially adapted to apiculture.

The exhibits showing the common injurious insects and plant diseases were of peculiar interest to growers and visitors. Here could be seen the common insect pests of the orchard and field and samples of injurious forms of plant diseases. Such exhibits are of much value from an educational standpoint.

Several nurserymen in the State made attractive displays of their products in trees and ornamental stock, thus giving purchasers an opportunity to observe the character of nursery stock grown in this State.

TRADES EXHIBIT

The exhibits of many manufacturers of spraying apparatus and insecticides, of seedsmen and general salesmen of fruit growers' and bee keepers' supplies add much to the educational features of such an exhibit. The growers are able to observe the up-to-date apparatus for the culture, treatment and har-

vesting of crops, and are able to select such machines or materials as are best suited to their needs. The trades exhibits at this show were especially complete and attractive in setting.

CONCLUSION

Thus the 1908 Horticultural Exhibition passes into history, but its effect upon the horticulture of the State will be more pronounced than any previous exhibiton of the Society. The attendance at the meeting and show was greater than ever before, and the growers evinced much more interest in the awards, showing their appreciation of the educational value of such exhibitions.

The realization of the fruit growers, truckers and florists of the State of the importance of proper culture and treatment of plants for the control of insect pests and plant diseases in order to produce clean, sound products—such as for the most part were exhibited at this show—and a greater amount of attention given by them to the packing and disposing of their crops, linked with the natural opportunities that the State affords, bids fair to place Maryland in the lead of her sister States in producing horticultural products.

Finally, what has been accomplished by one hundred and eighty-eight exhibitors indicates the possibilities of such horticultural exhibitions in the future in this State, as the increased interest manifested leads us to anticipate the co-operation and support of all the horticulturists in the State toward the

success of this worthy cause. The State has reason to be proud of these public-spirited citizens, especially as their products were of such a character as to justify the sending of a large exhibit of fruit to compete for prizes at the exhibit held in connection with the National Horticultural Congress, Council Bluffs, Iowa.

Great credit is also due the officers of the Maryland Horticultural Society for their untiring efforts in making the eleventh annual meeting and exhibition such a pronounced success.

What Could Be Learned at the Meeting of the State Horticultural Society in Baltimore

BY

P. M. NOVIK

On the first two days of this month (December) the Maryland State Horticultural Society held its annual meeting and show of horticultural products in the Fifth Regiment Armory, Baltimore.

From a small and unimportant beginning, these meetings have been worked up to be the greatest annual event in agriculture in our State.

Only two years ago, when the Society held its first meeting at the Armory, the show occupied only a small space in the middle of the floor; at the recent meeting the exhibit occupied every foot of the floor space, and if it continues to grow from

year to year we will see this immense hall crowded.

Held in the Armory the same week that the Society met was the Maryland Cereal and Forage Crop Breeders' Association; the Maryland Bee Keepers' Association, the Farmers' League of Maryland, and the State Grange.

It is characteristic of Maryland that the horticulturists are in the lead, since when and where the horticulturists meet all the other societies relating to rural life come together for their meetings.

From her very nature, Maryland is a horticultural State. With her large range of differing soils, and different elevations from the tidewater lands of the Eastern Shore to the mountainous section of Western Maryland, it is possible to grow a larger range of crops here, perhaps, than in any State of equal size.

Surely our horticultural industries are prosperous! We put up more canned vegetables than any other State in the Union, in addition to supplying the large cities of Baltimore and Washington with fresh products. For several weeks every year the prices of strawberries and peaches in the Northern markets are determined by the size and quality of the Maryland corp; and, were it not known before, it was proved by the show in the Armory that we both can and do grow apples unsurpassed by any.

But, although our horticultural industries are prosperous, yet still we have much to learn. All horticultural industries today are business concerns. It is not enough to grow fruit and vegetables, but

we must grow the very best kind in the most economical way. Only the farmer who has made a scientific study of the features of this industry can raise and sell crops with all the benefits which should accrue to him.

Now the average tomato crop of Maryland is not more than five and two-tenths tons to an acre, while every grower knows it should be at least seven tons. What are then the reasons for this small crop? Why are the returns from the tomato fields growing smaller every year?

Or, to take an example from the last show in Baltimore: How is it that all farmers agree in reporting a small cabbage crop, while the Maryland Agricultural Experiment Station exhibited finer cabbages than they ever had before?

These are problems well worthy of a thorough study. In the case of the tomato crop, some of the difficulties may be easily overcome. Crop rotation and spraying will solve the problem, but with cabbage it may be more difficult to trace the cause.

For the observing fruit-grower there were many things to learn at the show in Baltimore. The main part of the fruit exhibit was composed of only a few varieties. How these varieties are selected is a wonder for the uninformed. They are not always the best varieties by any means. For example, the "York Imperial" is one of the most commonly grown varieties of apple in the State. Certainly not because it is a very fine apple, for it is not. But, the tree is a strong and healthy grower; it bears well

and annually, and the fruit is easy to pack and store, and when the consumer wants it and is willing to pay for it, that is all the fruit grower can wish of an apple variety. It is of no importance to the commercial fruit grower whether he himself likes the fruit he grows or not; all the grower has to do is to supply the consumer with the kind he wishes to buy. It should, however, be added that some of the apples we grow on a large scale are the best you can get anywhere. "Grimes," "Stayman," "Gano" and "Stark" are good examples of apples which it has been proven it pays to grow in Maryland.

Perhaps the fruit growers learned most from the scoring and judging of the fruit on this occasion. Several of our best fruit growers spoke very freely of how much they had learned at this meeting on this one point.

The judges were especially severe in scoring down fruit that had not been sprayed properly. In fact it was almost impossible to get prizes for apples on which there appeared the slightest sign of insect or fungus attack.

Next in importance the judges considered uniformity of size, form and color, and this, together with freedom from blemishes, brought first premiums.

It was proved at this meeting, as it has been proved before, that it is only the expert fruit grower who can grow perfect fruit, but even he cannot always select and grade his apples as well as might have been expected.

Fruit growing is a very complicated industry, be-

ginning with the selection of ground and planting, and continuing with pruning, cultivating, cropping, spraying, harvesting, grading, packing, storing and marketing.

Each one of these steps in the work has to be paid proper attention to, if the goal of success is to be reached.

An important part of the show at the Armory this year was the spraying outfits exhibited. A more complete set of spraying machines has, perhaps, never been seen in Maryland. Many a farmer there found out that his spraying machinery was not up to date any more.

The old barrel spray pump gave a very poor impression beside the more modern rigs, with a ten-foot-high tower to spray from.

Second Annual Exhibition of the Maryland Grain and Forage Crop Growers' Association

BY

W. T. L. TALIAFERRO

The grain farmers of Maryland, as well as the horticulturists, have reason to feel proud of the display made at the late joint exhibition at the Fifth Regiment Armory in Baltimore. The distinct improvement in the quality of the grain shown, especially in corn, was noticeable at a glance and was the subject of universal comment.

The educational effect of the Corn Show of 1907 has evidently been far reaching. After the awards had been made, the judges for practically all the remainder of the show stood by the tables and explained to hundreds of growers the points involved in the decision and reasons which influenced their judgment. Few of the exhibitors had had their attention directed in such a detailed way to the good and bad points of corn, and there was much discussion as to the respective merits of different types and varieties, and the methods by which improvement might be made.

That these discussions were not fruitless was clearly shown at the 1908 exhibition. It was at once evident that the exhibits had been selected with far greater care than before and represented more sharply defined ideals on the part of the exhibitors. In no way was this more clearly shown than in the greater uniformity of the exhibits within themselves.

Another good sign in the late show was the large number of exhibitors who wished to have their exhibits returned. The exhibitors of 1907 apparently did not as a rule think ten ears of corn worth return expressage. In the recent show it was different. A majority of the exhibitors had evidently put time and care into the selection of their corn. It was the best they had, and they wished to have it back for seed, even though it cost something to get it.

The splendid show made by Talbot and Howard Counties in the corn exhibit received unstinted praise on all sides, and illustrated admirably how important a factor local enterprise is in such undertakings. Public-spirited citizens of Talbot subscribed fifty dollars for special county prizes, and almost the entire exhibit from Howard was sent over by the Ellicott City Board of Trade, after being first shown at their annual corn and poultry show.

The enterprise shown by these counties is most commendable and well worthy of imitation.

The corn shown by Mr. J. T. Hoopes, of Harford County, which won the sweepstakes prize, was a white corn of splendid quality. The grains were

deep, firm and fully matured. The ears well shaped, and of as large size as can be counted on to mature in our climate. The average weight was one and one-tenth pounds. Mr. Hoopes is one of the charter members of the Corn Breeders' Association, and has been making a close study of corn breeding for a number of years. Yet, had the season on the Eastern Shore been more favorable, the cup might have crossed the bay again.

The small-grain exhibits, though small in number, were excellent in quality, especially the wheat. Fine samples were shown of oats, rye, barley and buckwheat. Several of the exhibits of small grains were given by the judges lower grades than they otherwise would on account of admixture of weed seeds, damaged grain or other varieties. The exhibitor of small grains cannot be too careful in selecting a pure, clean sample.

The annual show of the Maryland Cereal and Forage Crop Breeders' Association has demonstrated its usefulness as a factor in the improvement of our staple crops, and should command the support of every citizen interested in the welfare of the State.